

Listing of the Claims:

The following is a complete listing of all the claims in the application, with an indication of the status of each:

- 1 1 (Currently Amended). A method for authenticating a user ~~an~~ and for
2 input of control information for an electronic device, said method
3 comprising:
4 acquiring through a scanner incorporated into a pointing device at
5 least two fingerprint images of a finger;
6 computing image correlations between a multiplicity of small
7 regions of the acquired fingerprint images;
8 extracting from each said fingerprint image at least one contact
9 parameter, calculated by the step of computing image correlations, the
10 contact parameter being determined between image attributes in each said
11 fingerprint image; and
12 using said fingerprint images and said at least one contact
13 parameter to authenticate said user and to control said electronic device.
- 1 2. (Original) A method as in claim 1, wherein said contact parameter is
2 rotation.
- 1 3. (Original) A method as in claim 1, wherein said contact parameter is
2 translation.
- 1 4. (Currently Amended) A method as in claim 3 1, further comprising
2 calculating pitch and roll rotations.
5. (Canceled)
6. (Canceled)

1 7. (Previously Presented) A method as in claim 1, further comprising the
2 step of determining the rate of change of some control parameter where a
3 rotation or translation of said finger relative to a reference position is used
4 to determine the rate of change of some control parameter of the computer.

8. (Canceled)

1 9. (Previously Presented) A method as in claim 7, wherein said the
2 reference position is the position at which contact with the scanner is first
3 registered, further comprising the step of resetting the reference point
4 every time the finger reestablishes contact with the scanner.

1 10. (Previously Presented) A method as in claim 1, further comprising the
2 step of comparing successive, and possibly consecutive, images taken from
3 a single period of contact of said finger with said scanner.

1 11. (Previously Presented) A method as in claim 1 wherein at least one of
2 said fingerprint images is a reference image captured previously.

1 12. (Original) A method as in claim 11 wherein the reference image is
2 labeled with known rotation information.

1 13. (Previously Presented) A method as in claim 12, further comprising
2 the step of prompting the user to present the finger at known rotations in
3 an enrollment stage to provide said known rotation information.

1 14. (Currently Amended) A system for authenticating a user and for input
2 of pointing information for a computer, said system comprising:
3 a fingerprint image acquisition scanner incorporated into a pointing
4 device for acquiring at least two fingerprint images of a finger, wherein
5 said scanner is able to capture successive images of a finger in motion on a

6 surface of said scanner;
7 computing means for computing image correlations between the
8 acquired fingerprint images;
9 an image processor for extracting from said fingerprint image at
10 least one contact parameter calculated by said computing means, other than
11 any optional authentication status data for said fingerprint image;
12 verifying an acquisition of data in real time from a live user based
13 on one or more variations in each of said contact parameters; and
14 means for using said successive fingerprint images and said at least
15 one contact parameter to control a pointing device and to authenticate said
16 user.

15. (Canceled)

1 16. (Currently Amended) A system as in claim ~~15~~ 14, said system further
2 comprising means for directing a user to follow through on any
3 combination of a multiplicity of prompts including: change a position of,
4 add pressure to contact or rotate said finger from which a fingerprint image
5 is acquired and wherein said multiplicity of prompts are verified by the
6 system to ensure that the data is being generated at the time of direction.

1 17. (Previously Presented) A system as in claim 14, said system further
2 comprising means for prompting the user to enact a sequence of finger
3 actions previously registered by the user as a “password” for the device.

1 18. (Previously Presented) A system as in claim 14 wherein a motion of
2 the finger tip is interpreted as a gesture for recognition by a gesture engine.

1 19. (Original) The system of claim 14, further comprising:
2 a feature extraction processor for extracting representative features
3 from said fingerprint image;

4 a memory for storing representative features of at least one
5 authorized user; and
6 a feature comparison processor for comparing said stored
7 representative features with said extracted representative features, and
8 generating authentication status data therefrom.

1 20. (Original) A system as in claim 19 wherein an identity of a user is
2 used to set customized features of the computer.

1 21. (Original) A system as in claim 19 where the identity of said user is
2 used to set customized parameters of the pointing device.

1 22. (Previously Presented) A system for imaging a fingerprint for input of
2 control information for an electronic device, said system comprising:
3 a fingerprint image acquisition scanner incorporated into a pointing
4 device for acquiring at least two fingerprint images of a finger, wherein
5 said scanner is able to capture successive images of a finger in motion on a
6 surface of said scanner;
7 computing means for computing image correlations between the
8 acquired fingerprint images; and
9 an image processor for extracting from said finger print image at
10 least one contact parameter, representing the angle of the finger in relation
11 to the scanner, where said angle is calculated by said computing means as
12 correlations between image attributes of two or more images acquired from
13 fingerprint image acquisition scanner,
14 wherein said successive fingerprint images and said at least one
15 contact parameter are used for control of said electronic device and for
16 authentication of a user.

1 23. (Previously Presented) A system for authenticating a user and for input
2 of pointing information for a computer, said system comprising:

3 a multiplicity of fingerprint image acquisition scanners
4 incorporated into a pointing device providing a large input surface for
5 acquiring successive fingerprint images of a finger;
6 computing means for computing image correlations between the
7 successively acquired fingerprint images; and
8 an image processor for extracting from each said fingerprint image
9 at least one contact parameter calculated by said computing means, other
10 than any optional authentication status data for said fingerprint image; and
11 means for using said fingerprint images and said at least one
12 contact parameter to authenticate said user and as input of pointing
13 information for a computer.

1 24. (Original) A system as in claim 23, where the scanner consists of a
2 one-dimensional array of small fingerprint scanners.

1 25. (Currently Amended) A system as in claim ~~24~~ 23, where the scanner
2 consists of a two-dimensional array of small fingerprint scanners.

1 26. (Original) A system as in claim 17, where the “password” is a
2 sequence of touching individual small fingerprint scanners in a specific
3 order with the same finger.

1 27. (Original) A system as in claim 26, where the password is a sequence
2 or touching individual small fingerprint scanners in a specific order, with
3 more than one finger being used in the sequence either serially or in
4 parallel.